II. *The Variation of the Compaſs*; *containing* (a) 1719 *Obſervations to, in, and from, the* Eaſt Indies, Guinea, Weſt Indies, *and* Mediterranean, *with the Latitudes and Longitudes at the Time of Obſervation. The Longitude for the moſt Part reckoned from the Meridian of* London; *if otherwiſe, it is taken Notice of in the Margin. By Mr.* Robert Douglaſs. *Recommended to the Public by the late Dr.* Halley. *Communicated by the Rev.* Nevil Maſkelyne, *Aſtronomer Royal, F. R. S. with a Letter prefixed from* William Mountaine, *Eſq. F. R. S. to Mr.* Maſkelyne.

TO THE REV. NEVIL MASKELYNE, A. R. F. R. S.

DEAR SIR,

St. John's, Southwark, Nov. 24, 1774.

R. June 1, 1775. MR. ROBERT DOUGLASS'S obſervations of the variation, taken by himſelf, and ſigned by Dr. HALLEY, I now beg leave to return, with anſwers to the queſtions you propoſed thereupon; *viz.* Whether I had ever ſeen them; or had made any uſe of them in my former publications? And if ſo, whether any further notice of them was neceſſary? In anſwer to the firſt; among my papers on the variation I have an exact copy of them, recommended under the ſame ſignature, of the ſame date, and in the ſame words, and the

(a) DOUGLASS calls theſe 1719 obſervations; but theſe tables, I rather think, ſhould be called the Reſult of 1719 Obſervations. W. MOUNTAINE.

whole ſeems written by the ſame hand; ſo that both of them (containing 1719 obſervations each) may be ſtiled originals: I have ſent mine herewith for your inſpection. To your ſecond queſtion, I anſwer, that I could not make any uſe of them in the conſtruction of either of my charts, as the firſt was formed from actual obſervations made about the year 1744, and DOUGLASS's conclude in the year 1735; but as many of them as ſuited the periodic times were taken in, and compared with many thouſands of others, according to the order of their reſpective dates, in forming the ſix periodic reviews, as publiſhed in the Philoſophical Tranſactions, vol. L. part I. for 1757. To the third queſtion; *viz.* whether they are worth a public record? I rather think they are; and have ſometimes thought to preſent them to the Royal Society for their approbation: for, notwithſtanding they have been thus made uſe of, yet they are mixed and moulded up with others, and thoſe only to every five degrees of latitude and longitude; ſo that the variations reſpecting the ſeveral latitudes and longitudes do not ſingly appear. And as the true theory of this *arcanum* in nature is yet ſo little known, every thing that ſerves to illuſtrate it, deſerves attention. And as theſe tables, for a ſingle ſet, are extenſive, and may be eſteemed authentic, they may very well ſerve for comparatives in future times; for if the change of the variation be regulated by any conſtant law, which I ſtill continue to doubt, the diſcovery of that law muſt greatly depend upon ſuch compariſons made from multitudes of good obſervations

taken at different periods, and thoſe over the whole face of the terraqueous globe; but until that law is certainly known, charts can be conſtructed only from time to time from the lateſt obſervations. I am, &c.

W. MOUNTAINE.

P. S. From the differences, times conſidered, between theſe identical obſervations of DOUGLASS, and Dr. HALLEY'S chart in 1700, Mr. CHARLES LEADBETTER attempted, with great labour, to delineate a ſet of curves for the year 1740, but without ſucceſs. He ſeems, by his unfiniſhed work, to have plunged himſelf into an inextricable labyrinth. I have the manuſcript chart and his table of differences now in my cuſtody. His attempt was fruſtrated by the opinion he poſſeſſed of an uniform and regular mutation; and this failure further convinced me of the neceſſity of proceeding upon other principles.

On the outſide leaf of each copy is the following teſtimonial:

Mr. ROBERT DOUGLASS *having ſhewn me this curious collection of Obſervations of the Magneticall Variation, made by himſelf in moſt parts of the world, I thought them worth preſerving, and as ſuch recommend them to the public, believing they may be of uſe both to the preſent and future navigation.*

Greenwich,
Aug. 28, 1738. EDM. HALLEY.

To the right honourable the Lords Commiſſioners for executing the office of Lord High Admiral of Great Britain and Ireland, &c.

MY LORDS,

I HAVE already given in to this honourable board thoſe obſervations I had to the Eaſt Indies, Guinea, and Weſt Indies, but not thoſe I had in a ſecond voyage to the Weſt Indies, nor from England to the Mediterranean. Dr. HALLEY has peruſed them, and recommended them to the public. And as nothing of this nature has ever yet appeared, to my knowledge, I hope they may be of uſe for ſhips bound to Guinea, Weſt Indies, Mediterranean, and Eaſt Indies: and as I think that all things of this nature belong to this honourable board, eſpecially by me who have ſerved as ſchool-maſter many years in the royal navy; therefore I moſt humbly dedicate them to your lordſhips, and am, with all due reſpect,

YOUR LORDSHIPS

moſt humble and moſt obedient ſervant,

Jan. 30, $173\frac{8}{9}$. R^t. DOUGLASS.

THE

THE variation of the compaſs in a voyage to, in, and from, the Eaſt Indies, in the years 1721, 22, 23, and part of 24, from the Iſland Madeira, on board the Lyon, THOMAS MATHEWS, Eſq. Commodore. Likewiſe the variation to Guinea, from the Iſle of Mayo to Cape de Verd, along the Coaſt to Widah, Iſland St. Thomas, Cape Lopez; back again to the Coaſt of Guinea; then to the Iſland St. Thomas; from thence to Barbados, St. Chriſtophers, Jamaica, Porto Bello, along the Coaſt to Cartagena; then to Jamaica through the Gulph of Florrida, as far as 35° 15′ North, and Weſt longitude from London 61° 56′; back again to Antegoa; from thence to England, in the years 1725, 26, and part of 27, on board the Kinſale, RICHARD GIRLINGTON, Eſq. Commander. Some more to the Weſt Indies, on board the Lark, JOHN GRAY, Eſq. Commander, in the years 1727 and 172$\frac{7}{8}$. More from England to the Mediterranean, as far as Leghorn, on board the Dreadnought, ALEXANDER GEDDES, Eſq. Commander, in the years 1730 and 31. More in the Mediterranean, as far as Tripoly in Barbary, on board the Hector, the hon. Sir ROGER BUTLER, Commander in the years 1733, 34, and 35,

Note, the firſt column is the year and day of the month; the ſecond and ſixth, the variation; the third and ſeventh, the number of obſervations; the fourth, fifth, eighth, and ninth, the latitude and longitude at the time of obſervation. The longitude for the moſt part reckoned

reckoned from the meridian of London; if otherwiſe, it is taken notice of in the margin. When there are more obſervations than one, that ſet down is the mean. When in ſight of land, I have ſet down its bearings and diſtance in the margin. E. ſtands for Eaſt, and W. for Weſt variation.

We obſerved with 3 compaſſes outward-bound to the Eaſt Indies. The maſter of the ſhip managed one; the pilot his own; and I had the other, which I kept the whole voyage. We had but 2 homeward-bound; they ſeldom differed $\frac{1}{2}$ a degree, and not often that: they were taken with all the exactneſs poſſible. I have ſet down the latitude and longitude of moſt of the places I went from, and the latitude and longitude I made the place ly in (that I was bound to) by my reckoning.

The VARIATION of the COMPASS to, in, and from, the Eaſt Indies, on board the Lyon, THOMAS MATHEWS, eſquire, Commodore.

1721 Mar.	Varn. P. M.	Nr of Obſ.	Lat.	Longde.	Varn. A. M.	Nr of Obſ.	Lat.	Longde.	
21	6 28W	2	29 20N	18 53Wt from London					Lat. of the Wt end of Madeira 32 25 N. Longde. Wt. from London 17 42.
24	4 30	3	24 36	19 8					Bound for the iſland St. Jago.
25	3 36	2	23 0	19 36					
26	3 19	2	21 0	20 30					
28	2 25	2	16 40	22 38					
Apr. 8	2 30	1	14 15	23 26					Lat. of Port de Praya bay on St. Jago 15 10 N. obsn. Longde. Wt. from London 23 42 as I have taken it. Bound for Cape Bon Eſperanza.
9	2 29	2	11 40	22 13					
10	2 21	4	9 44	21 32					
11	2 4	1	8 17	21 33					
12					2 14W	1	6 28N	20 42W	
13	2 11	2	5 40	20 37					
14	1 30	1	4 16	20 26					
15	1 20	2	3 30	20 30					
17	0 33	2	2 10	21 8	0 0	1	1 22	21 15	
18					0 40E	2	0 7	21 29	
20	0 22E	1	1 20S	21 25					

1721 Apr.	Var^{n}. P. M.	N^{r}. of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	N^{r}. of Obſ.	Lat.	Long^{de}.	
21	0 38W	1	1 46S	21 5W					
22	1 13	2	1 48	21 0					
May 2					2 11E	2	14 10S	25 14W	
3					3 0	1	16 0	26 42	
4	3 42E	1	16 50	27 16	3 26	3	18 0	28 2	
5	4 20	3	19 0	28 22	5 15	2	20 0	28 38	
6	4 20	2	21 10	28 22	5 18	2	22 38	27 56	
7	3 56	2	23 10	27 20	4 25	2	24 30	26 27W	Bound for Cape Bon Eſperanza.
9					3 0	1	26 35	23 31	
10	2 50	2	26 56	22 15					
11	1 56	2	27 7	21 26					
12	1 33	2	27 36	20 17					
13	1 8	2	29 10	17 0	1 0W	2	29 40	14 12	
15	1 31W	2	30 10	11 27					
17	3 48	3	32 40	6 20	5 23	3	33 12	4 12	
19					7 50	3	34 2	2 30E	
21	9 52	5	34 20	7 10E					
24	13 24	2	33 32	14 40	13 22	3	33 58	15 20	
25					14 12W	3	34 9	17 4	

1721 May	Varn. P.M.	Nr of Obſ.	Lat.	Longde.	Varn. A.M.	Nr of Obſ.	Lat.	Longde.	
26									Anchd in Table Bay, at Cape Bon Eſperanza. By my reckoning I make the Table Land to ly in 18 10 E. from London.
June	16 25W	11							Taken as we lay at anchor in Table Bay. I judge there is ſomething draws the compaſs.
14	14 25	2							Cape Bon Eſperanza S. 5 or 6 lgs.
18	19 0	3	35 20S	28 53E	20 10W	3	35 16S	30 10E	Lat. of the Cape 35 25 S. Longde. E. from London 17 25.
19	20 45	4	35 14	31 12					Bound for Madagaſcar.
20					21 13	3	34 0	34 10	
22					22 35	3	32 2	35 38	
24					22 45	2	30 51	36 10	
25					22 40	3	30 39	36 17	
26	23 3	2	30 30	35 47	22 51	2	29 53S	36 26	
27	22 32	1	29 40	36 2					
28					22 24	2	27 33	37 12	For Madagaſcar.
29	23 43	2	26 38	37 34					
July 3	23 51	3	24 14	45 30					
4	24 17	4							St. Auguſtin's Bay on Madagaſcar E. ½ S. 5 or 6 lgs.

1721 July	Var^{n}. P.M.	Nr. of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	Nr. of Obſ.	Lat.	Long^{de}.	
	23 18W	8							Taken as we lay at anchor in St. Auguſtin's Bay on Madagaſcar. I make St. Auguſtin's Bay on Madagaſcar to lye in 23 30 S. p^{r} obs^{n}. Long^{de} E^{t}. from London, by my reckoning, 46 21.
15	23 27	2	21 40S	45 36E	22 35W	3	21 10S	45 40E	The nearer to the land the leſs var^{n}.
16	23 51	2	20 47	45 57					
17	24 25	4	20 22	46 23					I take the land, called Weſtminſter Hall near St. Auguſtin's, to lye in 23 38 S. and E^{t}. long^{de} from London, 46 45
19	21 44	3	20 20						
20	22 13	4	19 48	46 8					Lat: of the mouth of Timerly river 20 20 obs^{n}. Long^{de} E^{t}. from London, by my reckoning, 46 40.
21	22 22	1	18 17	45 18					Bound for the Iſland Joanna.
22	21 25	2	17 15	45 18	21 20	1	16 25	45 6	
24	21 33	3	15 0	45 26					
25	21 16	3	13 35	46 29					
29	20 33	4							In Joanna Bay.
Aug. 2	19 12	3							Center of the Iſland Comaro, S.W. by W. 4 or 5 lgs.
3	19 44	5			19 4	3			Center of the Iſland Comaro S.S.W. 10 lgs. Center of Comaro S.$\frac{1}{2}$W. 18 lgs.

Aug.	Varn. P.M.	Nr. of Obſ.	Lat.	Longde.	Varn. A.M.	Nr. of Obſ.	Lat.	Longde.	
4					19 2W	1	10 18S	44 57E	Mean of the evening and morning. Lat. of the center of Comaro 11 44 S. longde. E. from London 45 17.
5					18 27	2	9 34	44 58	
6					18 23	2	8 28	45 10	Bound for Cape Gardafoy near the Red Sea.
7	18 33W	4	7 36S	45 24E	17 20	2	6 28	45 36	
9					16 17	2	2 2	47 55	
12	13 48	1	3 5N	51 17					
13	13 19	3	5 25	51 41					
14	11 39	2	8 45	51 11	11 14	1	9 10N	51 30	P.M. Neareſt land on the Ethiopian Coaſt W.N.W. 3 lgs. A.M. Neareſt land N.W. by N. 4 lgs.; very cold.
15					11 0	3	10 6	51 54	Neareſt land ditto Coaſt N. by W. 4 lgs.
16					11 11	3			Mount Felix at the mouth of the Red Sea W. ½ N. 5 or 6 lgs. I make Cape Gardafoy, at the mouth of the Red Sea, to ly in 11 40 N. and Et longde. from London 52 30.
18	11 49	4	12 36	53 10					I take Cape Gardafoy to ly in 11 45 N. and Et longde from London 52 50.
19	11 0	2	13 10	55 37					Bound for Bombay.
20	9 42	2	14 48	58 45					

Aug. 1721	Varn. P.M.	Nr. of Obs.	Lat.	Longde.	Varn. A.M.	Nr. of Obs.	Lat.	Longde.	
21	8 28W	2	16 14N	61 37E					
23	7 7	5	18 20	65 35					
24					5 35	2	19 16	68 10	
27	5 12	3							The Low Land to the Sord of Valentine's Peak Et. 3 lgs. near Bombay.
Sept. 12	5 16	2							Taken without the Wt gate on the Iſland Bombay.
	5 13	3							Taken aboard.
Oct.	5 27	3							Taken in the road by Choul; this is about 10 or 12 lgs. to the Sord of Bombay.
18	5 19	1							Iſland Calaba E.S.E. 2 lgs. This iſland is about 8 lgs. to the Sord of Bombay.
172½ Feb. 1	4 58	2	17 0						In ſight of Rogipore Iſland. Bound for Goa.
4	5 49	3							Alguarda by Goa S.E. 3 or 4 lgs.
5	5 25	3							Cape Ramas near Carwar, S.E. by E. ½ E. 3 or 4 lgs.
7	5 40	2							The Wtermoſt point of Carwar Bay N. by W. 7 or 8 lgs.
9	5 24	2							The Wtermoſt rocks near Manqulor N. ½ W. 3 lgs. This place lyes to the Sord of Baſſore, about 9 lgs.

1721/2 Feb.	Varn. P.M.	Nr. of Obſ.	Lat.	Longde.	Varn. A.M.	Nr of Obſ.	Lat.	Longde.	
10 11	5 35W	8							At an anchor in Manqulore Road.
13	4 21	8							In Tellicherry Road.
18	4 5	3							In Calicut Road.
19	3 34	4							Cochin Fort N. by E.½E. 4 lgs.
22	4 26	3	6 38N	77 56E					I take Anjanga to ly in 8 48N. and E. longde. from London, 77 12.
23					4 0W	6	5 24N	78 24E	Bound for the Iſland Mauritius.
24	3 24	4	4 48	78 41					
25					3 9	2	3 55	78 38	
26	3 36	5	3 24	78 34					
27	3 3	2			3 8	1			At equal altitudes, having run but 7 mile. Mean of evening and morning.
28	2 53	3	3 16	78 4	3 7	2	3 13	78 10	
Mar. 1	2 35	2	3 5	78 24	2 48	3	2 48	78 34	
2	2 16	2	2 28	78 40	3 0	3	2 0	78 47	
3	2 20	5	1 28	78 53	3 4	3	0 50	79 0	
4	2 14	4	0 28	79 9	2 8	2	0 14S	79 14	
5	1 36	2	0 54S	79 20	2 10	3	1 10	79 24	
6	2 2	2	1 20	79 30	2 16	3	1 30	79 40	

1722 Mar	Var^{n}. P.M.	Nr of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	Nr of Obſ.	Lat.	Long^{de}.	
7	1 48W	2	1 52S	79 8E					
8	2 28	2	2 45	79 36	2 46W	2	2 58S	79 36E	
9					3 6	3	4 12	79 48	
10	2 41	3	4 46	79 57	3 9	2	5 10	80 5	
11					3 24	1	5 36	80 22	
12					3 14	1	5 27	80 30	
13	2 54	2	5 27S	80 22	3 0	1	5 55	80 10	
14	3 15	2	6 26	80 2	3 28	1	7 2	79 45	
16	3 42	2	9 8	79 7					
17					5 20	2	11 36	78 30	
18	4 56	1	12 16	78 20	5 12	1	13 0	77 56	
19	5 8	2	13 50	77 20	6 15	2	15 0	76 24	
20	6 22	2	15 50	75 32	7 12	2	16 50	74 30	
21	7 26	2	17 40	73 22					
23					14 27	4	20 20	68 3	I can give no reaſon that the variation has riſen ſo much. 2° 40 difference lat. and 4 19 difference of long^{de}. The var^{n}. has altered 7° 1′.
25					16 27	3	23 35	63 24	
26					17 44	1	20 41	61 6	
1722 27	17 37	4	20 42	60 57	18 47	4	20 35	59 34	

1722 Mar.	Var^{n}. P.M.	Nr of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	Nr of Obſ.	Lat.	Long^{de}.	
28									Between 4 and 5 P. M. ſaw a round iſland, which lies near the iſland Mauritius. I make this iſland to ly in the long^{de}. of 58 42 E. from London. I judge that this iſland and Don Maſcareen ought to be laid down 3 degrees more to the E^{t}ard than moſt our books lays them in, for we often tryd the current.
Apr. 1722	18 46W	5							Taken at Peter Butts Bay, and this is about 4 mile to the N^{ord} of N.W. harbour on Mauritius.
5	18 22	1			18 56W	1			The largeſt of the 2 round iſlands near Mauritius S.W. ¼ W. 4 l. A.M. d^{o} iſland W. by S. ½ S. 4 lgs.
6					19 7	1			D^{o} iſland 8 or 9 lgs.
7					19 45	3			D^{o} iſland N by W. 12 lgs. Bound for the Iſland Don-Maſcareen.
8					19 49	2			The SE p^{t} of Don Maſcareen W.S.W. 6 or 7 lgs.
10	19 44	1							In St. Paul's Bay at Don-Maſcareen.
13	19 49	2	19 12S	52 11E					I take St. Paul's Bay to ly in 20 58 S^{o}. and E. long^{de}. from London 54 10. Bound for the Iſland St. Mary by Madagaſcar.
18	19 53	1							Charrock Point on Madagaſcar S. by W. 1 m. Long^{de}. of the N^{o}. end of St. Mary's 48 41, by my reckoning.

Apr. 1722	Var^{n}. P.M.	N^{o} of Obs^{t}.	Lat.	Long^{de}.	Var^{n}. A.M.	N^{o} of Obs^{t}.	Lat.	Long^{de}.	
19					19 52W	1			At Charrock Point on Madagaſcar.
22	19 25W	2				2			At anchor at the mouth of St. Mary's harbour.
May 2	18 30	2	13 34S	52 35E					Bound for Cape Amber, which is the N. E. p^{t}. of Madagaſcar.
3	19 1	5							Cape St. Sebaſtian on the N^{o} end Madagaſcar, S.W. ½ S. 4 or 5 lgs.
4	18 36	3							Cape Sebaſtian, E. by N. 9 lgs.
5	19 48	3	13 0		20 12	1	13 8S		The great iſland Noſſee, E. ½ S. 5 lgs.
6	19 45	3							The E^{t}ermoſt of the Iſl^{d} Noſſee, E. by N. 6 lgs.
7	19 5	3	13 34						D^{o} Iſland E.N.E. 10 or 11 lgs.
8	19 20	3	13 56						We are to the S^{ord} of Maringambo Harbour.
9					20 16	3	14 51		To the N^{ord} of Soundjee point.
10					20 24	2	15 21		Near Maringambo Harbour. Mean of the evening and morning.
11	21 18	4							Mean of the morning and evening. At an anchor in the outer bay of Manigaro.
14	21 14	4							Near New Maſſeleage. Mean of the evening and morning.

1722 May	Var^{n}. P.M.	Nr. of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	Nr. of Obſ.	Lat	Long^{de}.	
15	21 37W	2							Jamgomy Iſland S. by W. 5 lgs. Going back to Manigaro Harbour.
16	20 51	4							Near Manigaro Harbour.
18 to 21	21 22	7							At an anchor in the inner bay of Manigaro.
June 7	21 43	1			21 14W	2	14 37	46 40E	Mackamoy Iſld S.W. by S. 7 lgs. Bound for the Iſland Joanna. Lat. of the N.W. part of Manigaro Harb. 15 45 S^{o} obs^{n}. Long^{de}. E. from London 47 26.
8	21 12	2			20 24	1			Saw Valentine's Peak on the Iſland Mayota N.NE. 14 lgs. Long^{de}. 45 45 E. Valentine's Peak N. by E. 6 leagues.
12	20 39 20 33	2 2							At an anchor in Joanna Bay, and with the ſame compaſs I obſerved here in June laſt. By another compaſs.
18	19 18	3	9 54S	45 34E	18 54	3	8 47	45 23	Lat. of the N.E^{t}. part of Joanna 12 2 S. Long^{de}. E^{t}. from London 46 0, as I take it.
19	18 11	3	7 48	45 14					Bound to Fort St. George by the N^{o}. end of the Maldivee Iſlands.
20	16 48	1	5 24	45 0					
21	16 15	2	2 26	45 56					
22	15 34	3	0 35	48 21					
23	15 4	2	0 18N	51 4					

1722 June	Var^{n}. P. M.	Nr. of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	Nr. of Obſ.	Lat.	Long^{de}.	
24	13 59W	2	2 10N	54 10E					
25	12 43	3	3 16	57 2					
27	10 38	2	5 36	62 4					
29	9 11	2	8 34	66 45					
30	7 6	5	7 59	69 50					
July 1	7 8	4	7 53	71 44					
2	7 6	3	7 46	72 16	6 45W	1	7 42N	72 35E	
4	5 54	5	7 15	74 6	5 32	2	7 13	74 40	
5	4 56	3	7 10	75 22	5 0	1	7 0	76 10	
6	4 7	4			4 25	1			At equal altitudes evening and morning. In ſight of the N°. end of the Maldivees. I make the N°ermoſt of the Maldivee Iſlands to ly in 7 12 N. by a good obs^{n}. and I make it ly in 77 15 E. from London. A fair wind all the way; but this is about 4° to the E^{t}ard of what our books lays it in; and its my opinion, that Mauritius and Don-Maſcareen, and the N°. end of Maldivees ought to be laid down about 3° further to the E^{t}ard than they are.
7					4 43	3	7 5	0 49 E^{t} from the N°moſt Maldivees.	
9	2 52	5	5 38	4 12E from the N°moſt of the Maldivee Iſlands.					

1722 July	Varn. P.M.	Nr of Obſ.	Lat.	Longde.	Varn. A.M.	Nr of Obſ.	Lat.	Longde.	
10					2 13W	3	5 49N	7 43E from the Nomoſt of the Maldivees	A little after obſervn. ſaw the Iſland of Zeloan. Note, I have made 7 56 longde between the No end of the Maldivees and the land called the Elephant on Zeloan.
11					2 12	1			Fryers Hood on the S.E. part of Zeloan W.S.W. 8 lgs.
12	2 15W	1	8 30N		2 36	2	10 2	10 48W from Fryers Hood on Zeloan.	
July	2 52	9							At Fort St. George or Maderaſs.
29	1 42	2	16 20	3 38E from Fort St. George.	1 32	1	17 0	4 16E	Bound for Balaſore. The nearer the land I find the leſs variation.
30	1 38	1	18 3	4 41E from Fort St. George.					Note, I have made 5° 5′ longde. between Fort St. George and Jackernat Pagoda.
Aug. 7ber 8ber	3 4	26							At an anchor before the mouth of Rogues river; and, as I was informed, this is about 4 lgs. from the mouth of the Ganges.
28	3 33	2							Cape Palmiras near Balaſore W. ½ N. 4 lgs. Bound for Surrat.
29	3 0	1	18 56	0 9W from Cape Palmiras.					
31	3 17	2	14 50	2 5W from ditto.					The compaſſes new touched.

1722 9bre	Varn. P.M.	Nr of Obs.	Lat.	Longde.	Varn. A.M.	Nr of Obs.	Lat.	Longde.	
1	2 14W	1	12 53N	2 54W	2 2W	2	12 0N	3 17Wt from Palmiras.	
2	2 48	2	11 12	3 35					
4	2 21	2							Fryers Hood on Zeloan SW¼W 8 lgs. Note, I have made 4° 38′ longde. between Cape Palmiras and Fryers Hood on Zeloan.
5	2 36	1	5 44	0 23W from Fryers Hood.					
11	4 11	3	9 14						Near Porcat, a Dutch factory on the coaſt of Malabar.
12	4 13	3							The ſhips in Cochin road N. by E. 4 or 5 lgs.
13	3 34	3							Cochin Fort E.N.E. 2 lgs.
14	3 14	4							We are about midway between Panſan Factory and Calicut.
15	4 9	3							In Calicut Road.
16	3 44	3							Sacrifice Rock S.S.W. ½ W. 4 mile. This rock is about 4 or 5 lgs. to the Sord of Tellicherry.
19	4 4	3							Tellecherry Fort S. E. by E. 5 lgs.
21	5 20	3							Saw Pidgeon Iſland from the maſt-head N. by W. 10 lgs. Mallapy Hill E.N.Et.
22	4 43	2							Pidgeon Iſland S. by E. 6 lgs.

1722 9ber	Varn. P. M.	Nr of Obſ.	Lat.	Longde.	Varn. A. M.	Nr of Obſ.	Lat.	Longde	
23	5 4W	3							In Carwar Bay.
25	4 37	4							Carwar Bay S.E. by S. ½E. 4 lgs.
26 27 28	4 57	8							In Goa Road.
30	4 56	2	16 6N						About 8 lgs. to the Nord of Vingorla Rocks.
xber. 1	4 47	2	16 24						The mouth of Careptam Harbour E. by S. 3 mile.
2	4 50	2	16 50						Cape Dobs N.N.E. 5 lgs.
4	4 43	2	17 45						Sevendruke N.E. by E. 3 lgs. This is a rock fortified by Angria, and is about 4 lgs. to the Nord of Setra River.
5	4 50	3	17 55						Neareſt land E.N.E. 6 lgs.
6	5 16	3							Iſland Canary near Bombay N. ½ E. 7 lgs.
9	5 28	2							The land called the Neats Tongue E. by S. 8 lgs. Bound for Surrat.
10	5 36	1	19 37						Neareſt land E. 5 lgs. Between Bombay and St. Johns.
11	5 27	3							The high land of St. Johns S.S.E. 5 lgs. from the neareſt land.
12 to 20	5 50	17							In Surrat Road.

1722 xber.	Varn. P.M.	Nr of Obs.	Lat.	Longde.	Varn. A.M.	Nr of Obs.	Lat.	Longde.	
22	5 23W	2							Demaen E.S.E. 4 or 5 lgs. Bound for Bombay
23	5 26	2							The Neats Tongue S.E. by E. 7 lgs.
29 to 31	5 7	6							At Bombay.
Feb. 5 to 9	5 59	7							In Surrat Road.
17 2/3 14	5 30	1							We are about 7 or 8 lgs. to the Sord of Dundee Rogipore. Bound for Goa.
15	5 5	1	16 14N						We are a little to the Sord of Careptam Harbour.
17 to 19	5 13	5							In Goa Road.
24	5 8	3							In Carwar Bay.
25	5 5	1							The Soermoſt part of Carwar Bay N. ½ W. 5 lgs.
27 28 Mar. 1	5 5	8							In Mangulore Road.
3 4	4 9	3							In Tellecherry Road.
7	4 22	2	11 18	75 30E from London.					I take Sacrifice Rock to ly in 11 30 N. and Et. longde from London 75 38.
8	4 51	3	10 35	74 32					Bound for the Iſland Saccatra.

1722/3 Mar.	Varn. P.M.	Nr. of Obſ.	Lat.	Longde.	Varn. A.M.	Nr. of Obſ.	Lat.	Longde.	
9	5 11W	2	9 54N	72 55E					Iſland Qualpenna 10 0 N. obsn. Longde. Et. from London 73 20.
10	5 24	1	9 43	72 25					
11	5 46	1	10 6	72 21					
13	6 3	3	9 54	71 32					
14	5 43	2	9 46	71 17					
15	5 44	1	10 0	71 17					
16	5 38	1	9 38	70 55					
19	7 14	2	9 12	68 5	7 0W	1	9 25N	67 29E from London	
20	7 11	2	9 25	67 10	7 58	1	9 40	66 40	
21	8 30	2	9 45	66 9	8 22	1	9 54	65 28	
22	8 42	1	10 0	64 55					
23	9 16	2	10 37	63 53	8 33	2	11 12	63 27	
24	9 28	3	11 20	63 0	9 24	2	11 36	62 30	
25	9 54	4	11 40	62 3	9 45	2	12 0	61 20	
1723 26	10 12	2	12 10	60 53	9 48	1	12 20	60 11	
7					9 41	2	1	59 21	
28					9 48	2	12 21	59 30	

1723 Mar.	Var^{n}. P. M.	N^{r}. of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	N^{r}. of Obſ.	Lat.	Long^{de}.	
29	9 16W	1	12 30N	59 30E	9 18W	4	12 22N	59 20E from London.	
30	9 29	2	12 28	59 17	10 8	1	12 23	59 13	
31	9 48	1	12 32	59 12					
Apr. 1					10 6	1	12 45	58 19	
2	10 40	1	12 50	57 40	10 39	2	12 50	56 57	
3	10 45	2	12 48	56 0	11 26	1	12 44	54 45	
4	11 16	2	12 36		11 33	1			The E^{t}. end of the iſland Saccatra W. ½ N. 9 lgs.
5	11 36	1							E^{t} end of Saccatra S.E. by S. 5 lgs. Note, I have made 21° 8′ of long^{de}. between the iſland Qualpenna and the E^{t}. end of Saccatra; but as thoſe places is laid down in books, I ſhould not have made ſo much by about 2°. Lat. of the E^{t}moſt point of Saccatra 12 20 N. obſ.
8	11 38	4							At an anchor before the town of Saccatra, which ſtands on the N°. ſide of the iſland.
10	12 4	1							Lat. of the town 12 20 N. obs^{n}. The W^{t}. end of Saccatra S.W. ½ W. 5 lgs.
11	11 54 12 0	2							The mean between the morning and evening. At equal altitudes morning and evening.

1723 Apr.	Varn. P.M.	Nr of Obſ.	Lat.	Longde.	Varn. A.M.	Nr of Obſ.	Lat.	Longde.	
12	12 43W	2							The Et. end of the iſland Abdehura S. by E. 10 lgs.
13	12 18	2							Mount Feelix Et Soerly 5 lgs.
14	12 16	2	11 36N	1 0W from Mount Feelix.					
15	12 58	1	11 25	2 15	12 32W	1	11 46N	3 6W from Mount Feelix.	
16					13 4	2	12 36	4 38W from Do.	
17	12 37	3	12 50	4 48W from Do.					
18	13 50	2			13 40	2	12 36	0 56W from Cape Aden.	Cape Aden N.E. ½ N. 5 lgs. This Cape ought to be laid down a degree more to the Wtward than it is.
19	14 20	1							Taken in the narrow ſtraits of Babelmandel.
20 to 27	13 34	7							In Mocha Road in the Red Sea.
May 14	14 1	1							Zee Hill near the narrow ſtraits of Babelmandell E. by S. ½ S. 2 lgs.
15	14 8	1							The middle of the narrow ſtraits of Babelmandell S. by E. 2 lgs.

1723 May	Varn. P.M.	Nr of Obf.	Lat.	Longde.	Varn. A.M.	Nr of Obf.	Lat.	Longde.	
19	13 54W	1							The higheſt land of Cape Aden N.W. ½ W. 5 lgs.
20	13 42	1							Cape Aden W. N. W. ½ N. 9 lgs.
21	13 25	2	12 32N	0 30E from Cape Aden.					
22	13 10	1	12 16	1 0E from Dº.					
23	13 6	1	11 56	2 4E from Dº.					
24	13 23	2	11 58	2 30					
25	12 39	2	12 4	3 12					
27	13 3	3							Within 5 or 6 lgs. of the Ethiopian ſhoar.
28	12 0	2							About 3 or 4 lgs. from Mount Feelix. Note, I made 6° 14′ longde from Mount Feelix to Cape Aden, and in coming back 6° 21.
29	12 34	2							Cape Gardafoy S.E. ½ E. 5 lgs.
31	12 20	2							The town of Saccatra S.W. by W. 6 lgs.
June 4	8 26	1	9 50	66 50E from London.					I take the Et. end of the iſland Saccatra in 12 20 N. obsn. and Et. longde. from London 56 22.

1723 June	Varn. P. M.	Nr. of Obſ.	Lat.	Longde.	Varn. A. M.	Nr. of Obſ.	Lat.	Longde.	
5	7 34W	2	8 40N	69 14E					Bound for Fort St. David's on the Coaſt of Cormandel by the No. end of the Maldivee Iſlands. Note, I have made 20° 38′ longde. between the Et. end of the Iſland Saccatra and the Nermoſt of the Maldivee Iſlands; and this makes the Nomoſt iſland to ly in 77 0 E. from London; and in ſailing from the Iſland Joanna to this Nomoſt iſland I made it ly in 77 15. Note, we had a fair wind both voyages.
11	2 2	2	5 53	7 4E from the Nomoſt of the Maldiveelſlands.					In the morning ſaw the Iſland Zeloan to the Wtward of Dondra-Head. of longde. between the Nomoſt of the Maldivee Iſlands and Dondra-head on the Iſland Zeloan 7° 46′. Fair wind all the way.
29	2 25	4							At Fort St. Davids. Mean of the evening and morning.
July 15 17	3 16	4							At Fort St. George or Maderaſs.
8ber 14	2 6	3			2 8W	1	5 23N		Dondra Head (N.E.½E. 6 lgs.) on Zeloan. In ſight of Zeloan.
15	2 46	1							The Dutch factory at Point de Gallee on Zeloan N.N.E. 2 lgs.
16	2 45	2							A land that appears like a hay-cock near Pt. de Gallee on Zeloan E. ½ So. About 6 lgs. from the neareſt land.

1723 8ber.	Varn. P.M.	Nr of Obſ.	Lat.	Longde.	Varn. A.M.	Nr of Obſ.	Lat.	Longde.	
17	2 44W	1	7 20N	0 53W from Point de Gallee.	2 52W	1	7 54N	1 22W from Point de Gallee on Zeloan.	Bound for Bombay.
18	2 51	3			2 48	3			The high land of Cape Cameroon W. 10 lgs. Cape Cameroon W. by N. ½ N. 10 lgs.
19	2 50	1							The high land over Cape Cameroon, W.N.W. 6 lgs.
20	3 9	1							Cape Comaroon N.N.W. ½ W. 3 or 4 lgs.
21	2 58	2							Do. Cape Et. 4 or 5 lgs.
9ber 1	5 8	2							Manqulore E. by N. ½ N. 3 or 4 lgs. On the Malabar Coaſt.
2	5 13	3							Baſſalore Hill N.E. We are about 5 lgs. from the neareſt land.
3	4 48	2							The Soermoſt part of Carwar Bay N. 6 lgs.
4	5 48	4							Cape Ramas E. by N. 2 lgs. Here there is ſomething that draws the compaſs.
6	5 3	4							At Goa.
9	5 20	3							Rogipore N.E. ½ E. 5 or 6 lgs.
10	5 28	2							Cape Dobbs E. by N. 2 lgs.
12	5 25	3							Iſland Canary near Bombay N. by E. ½ E. 6 lgs.

1723 9ber	Varn. P.M.	Nr of Obſ.	Lat.	Longde.	Varn. A.M.	Nr of Obſ.	Lat.	Longde.	
13	5 10W	2							Going into Bombay.
xber 17 18	5 48	4							In Surrat Road.
xber	5 22	1							At Bombay.
1723/4 Jan.	5 41	3							At Goa.
5	5 32	2							In Carwar Bay.
6	5 33	2							Pidgeon Iſland S.E. by S. 3 lgs
9	2 46	1							Mount Dilla near Tellecherry E N.E. 2 mile. Here its plain that being near the land the compaſs is drawn.
10 11 12	4 34	6							In Tellecherry Road.
16	3 41	1							Note, I have all along obſerved that the variation decreaſes after you paſs Tellecherry, till you are 4 or 5 lgs. to the Sord. of Cochin; then increaſes again till you are to the Sord of Anjanga.
18 19	3 26	2							In Cochin Road.
21	4 16	1							Cochin Road N.E. ½ E. 4 or 5 lgs.
22	4 38	1	9 20N						About middway between Cochin and Anjanga.

172$\frac{3}{4}$ Feb.	Var^{n}. P.M.	N^{r}. of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	N^{r}. of Obſ.	Lat.	Long^{de}.	
24	4 17W	4				1			In Anjanga Road. Under ſail.
27	3 53	3	3 24N	78 12E^{t} from London.	3 10W	1	2 15N	78 30E	I make Anjanga to ly in 8 45 N. Long^{de}. E. from London 77 12.
29					2 54	2	2 38S	79 55	Bound for Cape Bon-Eſperanza.
30					3 17	2	5 0	80 26	
Feb. 1	3 55	2	7 57S	81 28	3 22	2	8 46	81 52	
2	4 13	3	9 30	82 6					
3	4 33	5	10 52	82 14	4 12	2	11 14	82 40	
4					5 5	4	11 34	82 53	
5	4 51	3	11 42	83 3					
6	4 51	3	11 35	83 21					
7	4 40	2	12 4	82 57					
8	4 55	4	13 52	81 30					
9	5 39	2	15 18	80 5	6 22	1	16 2	79 26	
11	8 28	2	18 20	76 10	9 38	4	19 2	74 42	
12	10 30	4	19 38	73 28	12 8	1	20 20	72 13	
13	13 2	3	20 40	71 4	13 59	2	21 10	69 49	
14	14 49	2	21 30	68 50	15 58	1	21 52	67 46	
15	16 19	3	22 8	67 0	16 52	4	22 34	66 10	
16	16 55	3	22 46	65 41	17 30	1	23 5	65 18	

1723/4 Feb.	Varn. P.M.	Nr. of Obſ.	Lat.	Longde.	Varn. A.M.	Nr. of Obſ.	Lat.	Longde.	
17	17 35W	2	23 12S	65 4E					
18	17 50	2	23 58	64 40	18 56W	4	24 15S	63 28E	
19	20 0	2	24 33	62 15	21 13	3	25 5	61 18	
20	22 12	2	25 44	60 30	22 8	2	26 18	59 25	
21	22 22	3	26 44	58 47	23 15	2	27 22	57 50	
22	23 30	1	27 50	57 0					Bound for Cape Bon-Eſperanza.
23	24 13	2	28 40	55 24					
24	25 5	2	29 23	52 47	24 34	2	29 50	51 38	
25	25 29	4	30 20	50 19	25 55	5	30 50	48 41	This is the greateſt variation we met with.
26	25 25	4	31 12	47 28	25 0	1	31 33	46 17	
27	25 32	6	31 58	44 57	25 12	1	33 22	43 43	
28	25 2	2	32 40	42 51	24 31	2	33 12	40 48	
29	23 50	2	33 38	39 10					
Mar. 5	22 6	4	35 42	30 48					
6	21 54	1	36 25	29 43	22 4	1	36 12	29 17	
8	20 54	4	35 58	27 8	19 31	4	36 0	25 33	
9	20 0	3	36 28	24 57					

1724 Mar.	Varn. P.M.	Nr. of Obſ.	Lat.	Longde.	Varn. A.M.	Nr. of Obſ.	Lat.	Longde.	
12	18 43W	4	36 40S	22 50E	18 56W	2	36 10S	21 38E	
13	18 16	2	35 57	20 47					
14	17 3	6	36 8	18 24	16 53	3	36 6	18 4	
15	16 23	3	36 6	17 53					
16	16 12	4							Cape Falſo near Cape Bon-Eſperanza N.W. 6 lgs.
21 to 29	16 27	8							In Table Bay at Cape Bon-Eſperanza. The fort S.S.W. 2 mile.
26 to 29	16 18	5							By another compaſs.
31	16 15	2							Going out of Table Bay. The fort S.S.W.½W. 6 or 7 mile.
Apr. 1	15 8	2	32 47	15 36					Lat. of the Table land 54 16 So. Longde E. from London 17 24.
2	15 15	2	32 44	14 50					
3	14 59	1	32 0	14 36	14 51	2	31 26	14 27	
4	14 33	3	31 20	14 34					
5					14 27	3	29 31	13 55	
6	14 30	6	29 0	13 34					Bound for St. Helena.
7	13 0	2	27 15	11 22					
9	11 40	2	23 8	6 29	12 4	4	22 20	5 37	

1724 Apr.	Varn. P.M.	Nr. of Obſ.	Lat.	Longde.	Varn. A.M.	Nr. of Obſ.	Lat.	Longde.	
10	12 2W	6	21 56S	5 0E					
13	10 47	2	17 54	1 0	10 10W	2	16 55S	0 8W	
14					9 30	2	16 4	2 48	
15					8 6	1	15 54	4 47	
16	7 18	3							The center of the iſland Wt. Noerly 6 or 7 lgs. I make St. Helena to ly in 6 16 W. from London, by my reckoning.
17 to 26	7 42	5							In St. Helena Road.
24	7 26	2							By another compaſs.
30	7 22	1							St. Helena Fort S.E. 3 lgs.
May 1	7 30	1	14 36	7 32W from London.					I take St. Helena Fort to ly in 16 0 So. and Wt. Longde. from London 6 5.
2	6 54	4	13 26	8 36					Bound for England.
4	5 44	4	10 36	11 6					
5	5 27	6	9 4	12 24					
6	5 1	2	7 18	13 55					
7	4 37	2	5 30	15 21					
8	4 46	1	3 46	16 17					
9	4 16	1	2 6	16 50	3 48	1	1 14	17 8	
11	3 40	1	1 0N	17 40	3 39		2 9N	17 49	

1724 May	Var^{n}. P.M.	N^{r}. of Obs.	Lat.	Long^{de}.	Var^{n}. A.M.	N^{r}. of Obs.	Lat.	Long^{de}.	
12	3 34W	1	3 8N	17 57W	2 56W	2	4 6N	18 5W	
16					3 29	2	9 28	18 57	
17	3 55	4	9 46	18 53					
18	4 26	1	10 20	9°31					Bound for England.
19					3 18	1	11 18	20 40W from London.	
20	3 55	3	11 39	21 13	3 38	2	11 30	21 46	
21	3 38	2	11 28	22 16					
23	2 26	1	12 0	23 59					
24	2 45	3	13 8	25 1					
25					2 15	2	14 30	26 29	
27	2 46	3	16 0	28 10					
28	2 8	5	17 23	29 17					
29	2 43	2	18 42	29 22					
30	3 26	4	19 58	31 14					
31	3 12	6	21 25	31 41					
June 1	2 48	6	22 25	32 15					
2					3 29	3	25 5	32 8	

1724 June	Varn. P.M.	Nr of Obſ.	Lat.	Longde.	Varn. A.M.	Nr of Obſ.	Lat.	Longde.	
3	3 39W	3	25 44N	33 30W					
4	4 22	2	26 31	34 23					
5	5 8	5	27 18	35 5	4 37W	2	27 43N	35 29W	
6	5 15	4	28 6	36 0					
7	5 30	3	28 56	36 22					
8	5 41	3	29 16	36 23					
9					5 42	1	30 24	36 40	
10	6 10	5	30 46	36 52	5 58	2	31 14	37 15	
12	6 57	4	32 26	38 13					
13	7 15	2	32 58	39 3					
15	7 19	4	34 30	40 30					
16	7 47	4	35 46	41 14					
17	8 29	4	37 0	41 39					
18	8 55	3	38 40	42 4					
19	8 21	5	39 33	40 37					
20	8 52	4	40 42	38 37					
21	9 16	3	41 43	36 5					
22	9 37	3	42 26	33 41					
23	9 38	2	43 34	31 7					

1724 June	Varn. P.M.	Nr of Obf.	Lat.	Longde.	Varn. A.M.	Nr of Obf.	Lat.	Longde.	
24	10 38W	6	44 16N	28 26W					
25	11 28	1	44 30	28 5					
29	11 14	2	45 26	27 22					
30	11 5c	4	46 0	25 18					
July 1	11 55	6	46 34	23 14					
2	11 51	1	46 54	21 54					
3	12 10	1	47 32	19 33					

Note, The Bill of Portland was the firſt land we made, and I am about $\frac{1}{2}$ a degree further to the Etard then it is laid down in our books.

The

The VARIATION of the COMPASS in a voyage to Guinea, Wt. Indies, and back to England, in the Kinſale.

1725 8ber.	Varn. P. M.	Nr of Obſ.	Lat.	Longde.	Varn. A. M.	Nr of Obſ.	Lat.	Longde.	
5	3 32W	1							The Peakt Hill on the Iſle of Mayo S.S.E.; we are about a mile from the ſhore.
7 8	4 5	4							At anchor in Port de Prya Bay on the S.Et. part of the Iſland St. Jago.
11	4 36	2	14 0N	20 0Wt from London.					Bound for Cape de Verd, Lat. of Pott de Prya Bay 15 10N. obsn. Longde. Wt. from London 23 42.
12	5 4	2	13 33	18 36					
13	5 21	3	13 44	17 30					At noon ſaw Cape de Verd N.N.E. 3 lgs.
14	5 11	1	13 53						In ſight of Gambia River.
15	6 29	2							Cape St. Marys near Gambia River S.W. 5 or 6 lgs.
to 21	6 19	8							At a anchor in the mouth of Gambia River.
25	4 36	1	11 6	16 12	4 59W	2	10 42N	15 54W	Lat. of Cape St. Marys 13 20 N. Longde. Wt. from London 15 36.
26					4 54		10 18	15 20	Bound for Siera Leon.
29	4 18	1	9 52	14 54	3 50		9 28	14 36	
30	4 13	2	9 12	14 16					

1725 9ber	Varn. P.M.	Nr. of Obs.	Lat.	Longde.	Varn. A.M.	Nr of Obs.	Lat.	Longde.	
1	3 49W	2	9 16N	14 10W					
8 9	5 12	3							In Siera Leon River. I judge there is something draws the compass.
14	4 47	2	7 56	12 42					Lat. of Bonas Islands 8 6 N. Longde. Wt. from London 12 10.
15	4 52	1	7 59	12 48					Bound for Cape Mount.
19	5 49	2	7 6	11 50					
20	6 20	2	6 56	11 9					
21					5 48W	1	6 42N	10 49W	
22	5 24	2	6 42	10 49					By equal altitudes evening and morning.
24	7 0	2			7 5	1			Cape Mount E.S.E. 5 or 6 lgs. By equal altitudes evening and morning.
25	6 58	2							Cape Mount E.N.E. 2 mile.
27	7 15	2							Near the River St. John, and about 3 or 4 mile from the shoar.
28					7 30	1			Near Great Bassa, and a little to the Wtd. of the River St. John.
29	7 28	2							Great Bassa No. 3 lgs. 2 miles from the shoar.
30	7 46	1							About 4 lgs. to the Wtard of Sestor or Sestos Road.

1725 8ber	Varn. P.M.	Nr. of Obſ.	Lat.	Longde.	Varn. A.M.	Nr. of Obſ.	Lat.	Longde.	
4	7 30W	2							In Seſtor Road.
5	7 15	2							The mouth of Seſtor River N.E. by N. 4 lgs.
7	9 8	1							Setra Crue N. by W. 3 lgs.
11	9 38	2							About 5 lgs. to the Wtward of the river St. Andrews.
13	9 54	1							About 3 lgs. to the Wtward of Cape de la Hou.
15	10 58	1							River Caſto N.W.byN. 3 mile.
18	11 0	1							The Village Tabo N.N.E.½E. 3 or 4 mile.
20 22 24	11 37	5							At Axim.
Jan. 1	11 55	3			12 10W	1			At Cape Coaſt. At equal altitudes.
5	11 25	3							The Engliſh fort at Accara N.W. 2 mile.
7	12 0	1							A little to the Wtward of the River Volta.
8	12 17	2							The flag at Little Papa N.byE. ½E. 2 mile.
11	12 45	2							In Widah Road.
20	13 28	1	4 50	2 23E from London.					Lat. of Widah 6 40N. Longde. Et. from London 2° 10′.

172⅝ Jan.	Var^{n}. P.M.	Nr of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	Nr of Obſ.	Lat.	Long^{de}.	
21	13 14W	1	3 42N	2 35E	13 30W	1	3 25N	2 32E^{t} from London.	Bound for the Iſl^{d} St. Thomas.
23	13 54	3	2 16	3 30	13 50	1	2 2	3 40	
24	14 7	3	1 48	3 58					
25	14 19	1	1 31	4 53	14 40	2	1 32	5 15	
26	14 36	1	1 27	4 56					
31	14 48	1							At the Iſland St. Thomas. I make the Iſl^{d} Anna de Chary by St. Thomas to ly in 00 16 N. per obs^{n}. and E^{t}. long^{de}. from London 6 16.
eb. 8	14 44	1							The Iſland Anna de Chary near the Iſland St. Thomas S.E. by E. about 7 lgs.
10					14 56	1	1 16S	1 16E from the Iſland Anna-bona.	Bound for Cape Lopoz.
11	14 35	1	1 10S	1 44E from Anna-bona.					
15					14 50	1	0 56	0 56W from Cape Lopoz.	
16	14 30	1	1 4	1 17W from Cape Lopoz.	15 1	2	1 9	1 43	
20	14 21	1	1 30	1 4W from Annabona.					Lat. of the Iſland Anna-bona 1 48 S^{o}. obs^{n}.

1725/6 Feb.	Varn. P.M.	Nr of Obſ.	Lat.	Longe.	A.M. Varn.	Nr of Obſ.	Lat.	Longde.	
22	13 10W	2	1 46E	2 11W from Do.	13 48W	1	1 38S	2 15W from Anna-bona.	Bound for the Coaſt of Guinea again.
23	13 28	2	1 35	2 19	13 37	2	1 36	2 41	
24	13 46	1	1 39	3 10	13 50	1	1 25	3 35	
27	12 20	2	0 50	7 24	12 6	2	0 40	8 4	
28	12 21	2	0 20	8 18	12 25	1	0	8 35	
Mar. 1	12 6	1	0 24N	8 55	12 20	1	1 10N	9 23	
2	12 6	1	1 34	9 42	11 44	2	1 50	9 57	
3	11 47	2	2 4	10 3					
5	11 30	3	4 16	11 21					
6	11 50	2							At Axim.
7	11 40	1							By equal Altitudes.
11	11 40	1							At Dicky's Cove.
14	11 27	2							Little Commendo N. by E. ½E. 4 lgs.
15	11 46	2							At Cape Coaſt.
21	11 34	1							At Annamaboe.
23 24	11 53	1							At Accara. Mean between the 3 laſt and this one.
28	12 32	2							At an anchor about 5 lgs. to the Wtward of Litle Papa.
29	12 43	2							At Litle Papa.

1726 Apr.	Var^{n}. P.M.	Nr. of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	Nr. of Obſ.	Lat.	Long^{de}.	
13 14 17	13 10W	4							In Widah Road.
22	13 0	1	5 18N	2 46E from London.					Lat. of Widah 6 48 N. obs^{n}. Long^{de}. E^{t}. from London 2 10.
24	13 11	1	4 21	2 50					
30	14 35 14 29*	2							At the Iſland St. Thomas. *By equal altitudes evening and morning. Note, by the of long^{de}. made from Widah this and the laſt time, I differed but 4 minutes; ſo that I judge the Iſland St. Thomas is laid down almoſt 2 degrees too far E^{t}erly, and our paſſage from St. Thomas to Barbadoes confirms me in this oppinion, having gained that paſſage in 33 days, and had a fair wind all the way.
May 19	13 44	1	0 4	3 48E from London.	13 44W	1	0 10S	2 48E from London.	Lat. of the Iſland Anna de Chares by St. Thom. 0 16N. Long^{de}. E^{t}. from London 6 16.
20	13 10	2	0 28S	1 51	12 42	1	0 46	0 39	Bound for Barbadoes.
21	12 34	1	1 2	0 13W from London.	11 38	1	1 18	1 33W from London.	
22	11 12	1	1 33	2 41					
23	10 4	1	1 45	5 15					
24	8 35	1	2 9	7 46	8 34	1	2 22	9 32	

1726 May	Varn. P.M.	Nr. of Obſ.	Lat.	Longde.	Varn. A.M.	Nr. of Obſ.	Lat.	Longde.	
25	6 54W	1	2 31S	10 44W	6 52W	1	2 36S	11 51W	
26	6 23	2	2 40	12 40					
27	4 53	2	2 38	14 30	4 24	2	2 29	15 34	
28	3 31	2	2 30	16 24	2 21	2	2 50	17 36	
29	2 25	1	2 52	18 39					
30					0 41	2	2 53	22 33	
31	0 5E	1	2 46	23 44	0 4E	2	2 27	25 1	
June 1	0 17W	2	2 12	26 6	0 16W	3	1 33	27 2	
2	0 16E	2	1 0	28 4	0 18E	3	0 19	29 7	
3	0 22	1	0 25N	29 40	0 19	1	1 7N	30 39	
4	0 36	2	1 38	31 18	0 26	1	2 20	31 55	
6					0 26	1	4 20	34 6	
7	0 34	1	4 42	34 13	0 37	2	5 0	34 16	
8	0 30	2	5 20	34 22W					Bound for Barbadoes.
9	0 14	1	6 47	35 33	0 10	1	7 4	37 0Wt. from London.	
11					0 36	1	8 42	41 10	
13	0 50	1	10 4	44 52	1 32	1	10 48	46 25	
14	1 36	1	11 18	47 43	1 26	1	11 48	49 2	
15					2 22	1	12 26	51 6	

1726 June	Varn. P.M.	Nr of Obſ.	Lat.	Longde.	Varn. A.M.	Nr of Obſ.	Lat.	Longde.	
16	2 16E	1	12 44N	52 22W	2 37E	2	12 56N	54 6W	
17	3 0	1	13 5	55 28	3 36	1	13 12	57 3	Note, I make the center of Barbadoes to ly in 13 27 N. by obsn. and Wt. longde. from London 58 1′. Having a fair wind all the way, this makes me believe that the Iſland Anna de Chares; viz. 16 16 E. is near the truth.
26 27 28	4 24	3							In Carliſle Bay at Barbadoes.
29	3 26	1							Lambert's Point on the N.Wt. part of Barbadoes E.S.E. 5 lgs.
July 1	3 22	1							The Wtermoſt part of Guardalupa N.E. ½ N. 4 or 5 lgs.
2	4 10	1							At Backſtar on the Iſland St. Chriſtophers.
6	5 22	1	17 58	9 2W from Palmeta Point on the Iſland St. Chriſtophers.					Within 4 or 5 lgs. of Hiſpaniola, and a little to the Wtward of Cape Zapazen on Hiſpaniola.
7	5 12	1	17 40	0 46W from the Iſland Alovalla near Cape Alongia on Hiſpaniola.					

1726 July	Varn. P. M.	Nr. of Obſ.	Lat.	Longde.	Varn. A. M.	Nr. of Obſ.	Lat.	Longde.	
9	5 3E	1	18 0N	0 46Wt from Do.	5 12E	1			Saw the Et. end of Jamaica.
12	6 2	1	17 6	0 12E from Portland Point on Jamaica					Bound for Porto Bell.
13					6 30	1	14 28N	0 38W from Portland Point on Jamaica	
14	7 0	1	13 32	0 58W from Do.	7 8	1	12 27	1 25W from Do.	
15	7 16	1	11 32	1 52W from Do	7 30	1	10 46	2 18W from Do.	
16					7 22	1	9 51	2 39W from Do.	
22					7 48	1			At an anchor without the Iſland called the Great Baſtimentos.
Aug. 7	7 24	1							Cape Cathivas near the Gulph of Darien S.E. by S. 7 lgs.
9	7 30	1	9 40	1 27E from Cape Cathivas.					
11	6 50	1							The land called Mother la Pope near Cartagena S. by E. ½ E. 5 lgs.

1726 Aug.	Varn. P.M.	Nr. of Obs.	Lat.	Longde.	Varn. A.M.	Nr. of Obs.	Lat.	Longde.	
12	6 20E	1							Point Jamba near Cartagena E.S.E. 3 lgs.
13	6 14	1	12 52N	0 42Wt from Point Jamba.					Bound for Jamaica.
14	6 4	1	14 0	0 50W from Do.					
15	5 42	1	15 18	1 3W from Do.					
16					5 28E	2	17 6N	1 30Wt from Do.	
7ber 12	4 31	3							At Port Royal in Jamaica.
8ber 12					4 49	1	18 40	1 53Wt from Point Negril on Jamaica.	
13					4 41	1	19 54	0 57Wt from the N.W. end of the Grand Commanis	
14					4 4	1	20 44	2 7Wt from Do.	Bound through the Gulph of Florida.
17	4 7	2	22 53	0 16Wt from Cape St. Antonio on the Wt. end of the Iſland Cuba.					

1726 8ber	Varn. P. M.	Nr of Obſ.	Lat.	Longde.	Varn. A. M.	Nr of Obſ.	Lat.	Longde.	
18	4 25E	2	22 31N	0 55Et from Cape Antonio.					
19					4 0E	1			The middle of the Table Land S. by E. ½ E. 4 lgs. This Table Land is about 5 lgs. to the Wtward of the Havanna.
23					4 24	1			The high round hill, called Pan de Mathaneas, a little to the Etward of the bay of the ſame name on Cuba, bore S. W. by S. 10 or 12 lgs.
24	4 23	2	23 30	0 38E from Pan de Mathaneas.					
25	3 26	1							The land about Cape Florida N. by W. 6 lgs. A great ſwell.
26	3 5	1	25 12	81 20W from London.					In the Gulph. Lat. of Cape Florida 24 48 N. Longde. Wt. from London 21 55.
28					2 11	1	27 50N	81 30W from London.	A great ſwell.
30					0 56	1	29 35	80 40	Do. ſwell.
9ber 3					2 14W	1	33 25	71 52	A very great ſea.
6					5 12	1	35 4	64 6	A great ſea.
8	5 8W	1	35 15	61 56					

1726 9ber	Varn. P.M.	Nr of Obs.	Lat.	Longde.	Varn. A.M.	Nr of Obs.	Lat.	Longde.	
9	4 55W	1	35 0N	61 55W from London.					Going back to the Wt. Indies. Swell much abated.
10	5 6	1	33 14	61 14					
14	0 41	2	26 14	58 9	0 36W	1	25 48N	58 6W from London.	
15	1 3	1	25 41	58 0	0 54	1	25 20	37 14	
16	4	1	24 48	56 38					
17	0 20	1	23 0	56 35					
18	0 32E	1	21 7	56 32	1 46E	1	19 54	56 21	
19					1 46	1	18 56	56 21	
20	1 43	1	18 32	56 22	2 25	1	17 34	56 17	
21	2 15	1	16 52	56 22	3 11	1	16 12	56 50	
22					3 26	1	15 58	58 6	
23	3 27	1			3 40	1			Island Descado S.W. ½ W. 5 lgs. I make Descado to to ly in 16 10 N. obsn. and Wt. longde. from London 59 5. The center of the island Marigalant N.W. 5 lgs. Dominico S.W. by S. 5 lgs.
29	4 4	1							In sight of Antego.
1727 Apr. 14	4 28	1							The high land of the Island Nevis W. ½ S°. 7 lgs. The Island Rodunda S. by W. ½ W. 7 lgs. The center of the Island Antego E. by S. ½ S. 7 lgs.

1727 Apr.	Var^{n}. P.M.	Nr. of Obſ.	Lat.	Long^{de}.	A.M. Var^{n}.	Nr. of Obſ.	Lat.	Long^{de}.	
15	3 30E	2	18 36N	61 18W from London.	2 56E	1	19 20N	61 20W from London.	Lat. of the Iſland Nevis 17 1c N. Long^{de}. W. from London 61 1o.
17	3 2	4	19 50	61 14					Bound for England.
19	2 22	3	20 56	61 28					
22	0 51	3	25 20	61 24	1 7	3			
23	0 43	1	25 54	61 23	0 16	2	26 6	61 21	
24					0 15W	2	26 16	61 30	
25					0 41E	1	26 24	61 47	
26					0 18	3	26 34	61 48	Mean of the evening and morning.
27	0 35	1	27 44	61 44					
28					0 38W	4	28 36	60 52	
29	0 42W	2	28 46	60 54	0 48	2	29 6	60 50	
30	1 18	2	30 9	60 45	1 56	1	31 26	60 4	
May 1	2 32	1	32 28	59 33	3 16	1	32 54	59 16	
2	4 5	2	33 54	58 43					
6	9 5	2	40 28	55 42					
7	10 12	1	41 56	52 54					

1727 May	Var^{n}. P. M.	Nr. of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	Nr. of Obſ.	Lat.	Long^{de}.	
9	11 54W	2	43 56N	48 41W					This day ſounded having 35 fathom fine brown ſand; by this we judge we are on the great bank.
10	12 37	3	44 30	46 0					
12	14 20	1	46 12	39 18					A great ſea.
13	14 0	1	46 51	35 15					D°. ſea.
15	12 54	1	46 16	28 25					D°. ſea.
17	11 39	2	46 10	23 53					Smooth water.
21	11 46	2	48 45	15 12					
26	13 24	2							In ſight of Portland, diſt. about 5 lgs.

Note, By my reckoning I made the Lizard to ly in 50 6 by judgement, and W^{t}. longitude from London 5 27; and as I have ſet down the lat. and long^{de}. at the time of obs^{n}. by this it may appear how far theſe obſervations may be relyed on.

VARIATION

VARIATION of the COMPASS from Madera to the Wt. Indies, Lark, Captain GRAY.

1727 xber	Varn. P.M.	Nr of Obſ.	Lat.	Longde.	Varn. A.M.	Nr of Obſ.	Lat.	Longde.	
30	6 58W	3							In Madera Road.
Jan. 6	6 18	1	28 52N	19 46Wt from London.					Lat. Wt. end of Madera 32 25 N. Longde. Wt. from London 17 42.
172⅞ 18					2 16E	1	16 19N	51 5W from London.	
19	2 14E	1	16 29	52 8					
20	2 48	2	16 18	54 53	3 58	1	16 16	56 47	
21	3 58	1	16 24	58 20					
22	3 40	2							Iſland Deſcado S.E. ½ E. 8 lgs. N.Wt. part of Guardalupa S.W. ½ S. 6 lgs. N.Et. part of Antego N.W. by W. 8 lgs.
23	4 49	2							At the Iſland St. Chriſtopher.
27	6 2	2							Iſland Altovalla near Hiſpaniola N.E. by N. ¼ E. 5 lgs.
Feb. 19	7 37	3							The land called Mother La Pope, near Cartegena, S. by E. 10 or 12 lgs.

VARIATION of the COMPASS in going towards Liſbon from England, and in the Mediterranean, Dreadnought, Capt. GEDDES.

1730 May	Varn. P.M.	No. of Obſ.	Lat.	Longde.	Varn. A.M.	No. of Obſ.	Lat.	Longde.	
5	13 26W	2	45 22N	9 39W from London.					
7	12 3	2	41 32	10 39					
1731 July 27	12 48	1							Iſland Sizarga S.E. 2 lgs. This iſland is about 5 lgs. to the W'ard of the Groin.
28	12 12	1	41 56	9 26					
29	12 26	1	40 0	10 3					
8ber 8	11 10	1							The land about Cape Dragon in the Mediterranean N. by E. 12 or 14 lgs.
11	10 52	1							Cape Toulon N.W.$\frac{1}{2}$W. 6 lgs.
20	9 42	2							In Leghorn Road.
xber 6	10 48	1	41 34	18 54W from London.					In our paſſage to England.

VARIATION of the COMPASS in the Mediterrannean, Hector, Sir ROGER BULTER.

1733 Apr.	Varn. P.M.	Nr. of Obſ.	Lat.	Longde.	Varn. A.M.	Nr. of Obſ.	Lat.	Longde.	
21	14 2W	1	34 2N	12 30E from London.					Between the Iſland Pantalana and Tripoly in Barbary.
22	13 22	1							The obſervn. not very good. In ſight of the land to the Etard of Tripoly.
26	14 20	2	34 16	12 22					Between Tripoly and the Iſland Lampodoria.
7ber 17	13 38	3							In Gibralter Bay.
27	13 49	3							Cape St. Vincent N. by E. ½ E. 4 lgs.
9ber 9	13 56	2							Bound for Gibralter towards Cape de Gatt.
11	14 12	2							Iſland of Alborne W. by S. 3 leagues.
18	14 34	1							Cape Mola on the Iſland Minorca N.N.E. 4 or 5 lgs.
Mar. 10	14 20	1							Cape St. Marys on the Coaſt of Portugal N.E. by E. 6 or 7 lgs.
1734 Apr. 6	13 56	3							On the Coaſt of Barbary near Larac.

1735 Aug.	Var^{n}. P.M.	Nr. of Obſ.	Lat.	Long^{de}.	Var^{n}. A.M.	Nr. of Obſ.	Lat.	Long^{de}.	
9	11 33W	2	38 8N	14 2W from London.					Going from the Coaſt of Barbary to Liſbon.
10	11 44	1	38 8	12 55					
1735 Aug.	12 19	3							In Sallee Road on the Coaſt of Barbary.

In Scandaroon Bay, 1711, I found 16° W. variation.

At Elſinore and Carleſcroon in the Baltic, 1716, I found a a point W^{t}. variation.

III. *Pro-*